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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/534,013

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Yuxiang Zhou

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EXAMINER

AJIBADE AKONAI, OLUMIDE

ART UNIT

PAPER NUMBER

2686

DATE MAILED: 02/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/534,013

Applicant(s)

ZHOU, YUXIANG

Examiner

Olumide T. Ajibade-Akonai

Art Unit

2686

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE \_\_\_\_\_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 19 July 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 2 and 5-10 are rejected under 35 U.S.C. 102(b) as being anticipated by **Lahtinen 6,157,832**.

Regarding **claims 1 and 7**, Lahtinen discloses a method for assigning (and searching) a mobile subscriber roaming number, wherein in a Visitor location Register, the mobile subscriber roaming number is managed by a plurality of Visitor Location Register modules, characterized in that: said mobile subscriber roaming number (MSRN, see fig. 5, col. 5, lines 60-61) comprises a Visitor Location Register module number (service code SERVN, see fig. 5, col. 5, lines 60-62), and said Visitor Location Register module number is utilized to directly determine (and find) the correspondence relationship between said assigned mobile subscriber roaming number and the Visitor Location Register module (MSRN number structure, see fig. 5, col. 5, lines 60-61) in said Visitor Location Register that manages said mobile subscriber roaming number (the combination of SERVN and VLRN in the MSRN structure is the MSC routing address and thus the routing address of the VLR since the VLR is co-located with the MSC, thereby indicating that depending on the value of SERVN, the MSRN indicates

the servicing of the call going to a particular routing address, see figs. 1 and 5, col. 4, lines 40-50, col. 5, lines 51-67 and col. 6, lines 55-64).

Regarding **claim 2**, as applied to claim 1, Lahtinen further discloses said Visitor Location Register (VLR see fig. 2, col. 2, line 8) receives from a Home Location Register (HLR see fig. 2, col. 2, line 23) a request to assign a roaming number (roaming number request message 3, see fig. 2, col. 2, lines 24-25) for a mobile subscriber (MS, see fig. 2); said Visitor Location Register forwards the request to one of the Visitor Location Register modules (see fig. 2, col. 2, lines 25-33); said Visitor Location Register module records the information corresponding to said mobile subscriber and obtains its corresponding VLR sub-number (see fig. 2, col. 2, lines 25-33); said Visitor Location Register module generates a mobile subscriber roaming number (VLR allocates a MSRN in response message 5, see fig. 2, col. 2, lines 29-35), said mobile subscriber roaming number comprises a country code (country code CC, see fig. 5, col. 5, line 53), the number of a Mobile Switching Center where said mobile subscriber is in (NDC+SERVN, see fig. 5, col. 5, lines 51-55 and col. 6, lines 13-26 and 61-64), the module number of said Visitor Location Register module (NDC+SERVN, see fig. 5, col. 5, lines 51-55 and col. 6, lines 13-26 and 61-64), said VLR sub-number; said Visitor Location Register module returns said mobile subscriber roaming number to said Home Location Register (message 5, see fig. 2, p.2, lines 32-35).

Regarding **claim 5**, as applied to claim 1, Lahtinen further discloses wherein the length of the module number of said Visitor Location Register module may be one bit or multiple bits (1 to 2 bits, see fig. 5, col. 6, lines 6-12).

Regarding **claim 6**, as applied to claim 1, Lahtinen further discloses wherein the length of said mobile subscriber roaming number is not longer than 15 bits (see fig. 5, col. 6, lines 6-13).

Regarding **claim 8**, as applied to claim 7, Lahtinen further discloses the said method comprising the following steps: based on said mobile subscriber roaming number, a Visitor Mobile Switching Center (MSC see fig. 2, col. 2, line 41) initiates a query to the Visitor Location Register module corresponding to said mobile subscriber roaming number (MSC makes an inquiry to the VLR, see fig. 2, col. 2, lines 35-43); said Visitor Location Register module searches the information of corresponding mobile subscriber based on said mobile subscriber roaming number (messages 8 and 9, see fig. 2, col. 2, lines 35-43); and returns it to said Visitor Mobile Switching Center (messages 8 and 9, see fig. 2, col. 2, lines 35-43).

Regarding **claim 9**, as applied to claim 8, Lahtinen further discloses wherein the step of initiating a query further comprising: said Visitor Mobile Switching Center (MSC see fig. 2, col. 2, line 41) decomposes said mobile subscriber roaming number into a country code, a Mobile Switching Center number and a Visitor Location Register module number based on the assignment format of said mobile subscriber roaming number (inherent, since the MSC receives the MSRN which has the extra one or two SERVN bits to indicate which transmission link route is to be selected and this is determined by parsing the information to determine the CC, NDC and SN, see figs. 4 and 5, col. 5, lines 51-67, and col. 6, lines 6-13 and 55-64); said Visitor Mobile Switching Center sends the query request to the Visitor Location Register module

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corresponded to said Visitor Location Register module number (MSC makes an inquiry to the VLR, see fig. 2, col. 2, lines 35-43).

Regarding **claim 10**, Lahtinen further discloses wherein said searching step further comprising: said Visitor Location Register module obtains the VLR sub-number in said mobile subscriber roaming number, and obtains the information of said mobile subscriber in the record of the mobile subscriber roaming number information table corresponded to said VLR sub-number (inherent, since in the inquiry and response messages 8 and 9, the VLR searches for information for call set-up between the MS and MSC using the information of the MSRN, see fig. 2, col. 2, lines 35-43), and returns it to said Visitor Mobile Switching Center (MSC makes an inquiry to the VLR, see fig. 2, col. 2, lines 35-43); said Visitor Location Register module releases said VLR sub-number (inherent, since the VLR sub-numbers are part of the MSRN, the MSRN being a temporary location directory number that is used to rout calls to the MSC, and is later released to use on another call to the MS, see fig. 2, col. 2, lines 35-43).

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Lahtinen 6,157,832** in view of **Applicant's admitted prior art**.

Regarding **claim 3**, as applied to claim 2, Lahtinen discloses the claimed

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invention except said recording step further comprising: said Visitor Location Register module records the information of said mobile subscriber in an idle record in a mobile subscriber roaming number information table, and obtains the VLR sub-number corresponding to said record.

Applicant's admitted prior art, however, discloses wherein except said recording step further comprising: said Visitor Location Register module records the information of said mobile subscriber in an idle record in a mobile subscriber roaming number information table (MS information table and MSRN information table, see p.1, lines 23-28 and p.2, line 1, and p.3, lines 4-10), and obtains the VLR sub-number (record number of a MS information table, see tables in p.3 and p.2, lines 24-27) corresponding to said record.

It would therefore have been obvious to one of ordinary skill in the art to combine the teaching in the Applicant's admitted prior art with Lahtinen for the benefit of routing a call from a gateway MSC to a visiting MSC.

Regarding **claim 4**, as applied to claim 1, Lahtinen discloses the claimed invention except characterized in that, said Visitor Location Register is a multi-module-clustered distributed real time database.

Applicant's admitted prior art, however, discloses wherein said Visitor Location Register is a multi-module-clustered distributed real time database (VLR is a real time database, see p.1, lines 22-24).

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It would therefore have been obvious to one of ordinary skill in the art to further modify the combination of Lahtinen and the Applicant's admitted prior art for the benefit of routing a call from a gateway MSC to a visiting MSC.

***Conclusion***

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Uchiyama et al (5,84,169) discloses a roaming mobile communication system and method.

Janhonen et al (6,023,618) discloses a method for improving charging criteria in a mobile telephone network.

Lahtinen (6,148,200) discloses a load reduction of a visitor location register.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Olumide T. Ajibade-Akonai whose telephone number is 571-272-6496. The examiner can normally be reached on M-F, 8.30p-5p.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marsha D. Banks-Harold can be reached on 571-272-7905. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

OA



**CHARLES APPIAH**  
**PRIMARY EXAMINER**